

What is claimed is:

- 1 1. Apparatus for detecting wafer flat shift, comprising:
 - 2 a plurality of sensors in a power supply circuit for shutting off wafer fabrication
 - 3 equipment, the sensors detecting a shift in wafer flat position; and the power supply
 - 4 circuit shutting off the wafer fabrication equipment.
- 1 2. The apparatus of claim 1, further comprising:
 - 2 the sensors being adjusted to detect a wafer flat shift in a plurality of directions of angular
 - 3 displacement.
- 1 3. The apparatus of claim 1, further comprising:
 - 2 the sensors being adjusted to detect a wafer flat shift in a range of (2)(0.9⁰) to (5)(0.9⁰)
 - 3 angular displacement.
- 1 4. The apparatus of claim 1, further comprising:
 - 2 a frame; and
 - 3 an adjustable mounting mechanism mounting each of the sensors on the frame for
 - 4 adjustment along orthogonal axes.
- 1 5. The apparatus of claim 1, further comprising:
 - 2 a frame; and
 - 3 the sensors being adjustably mounted on the frame.
- 1 6. The apparatus of claim 1, further comprising:
 - 2 a relay receiving signals from the sensors; and
 - 3 a solenoid operated by the relay to open a door of the wafer fabrication equipment to
 - 4 release a corresponding wafer for further fabrication; and
 - 5 a wafer flat shift shutting off at least one of the signals from the sensors.
- 1 7. A method of detecting wafer flat shift comprising the steps of;

2 detecting a wafer flat shift; and

3 shutting off a wafer fabrication equipment when the wafer flat shift exceeds a set amount.

1 8. The method as recited in claim 7, further comprising the step of:
2 detecting a wafer flat shift in a plurality of directions of angular displacement.

1 9. The method as recited in claim 7, further comprising the step of:
2 detecting the wafer flat shift by optical beam sensors.

1 10. The method as recited in claim 7, further comprising the step of:
2 detecting a wafer flat shift in a range of (2)(0.9⁰) to (5)(0.9⁰) angular displacement.

1 11. The method as recited in claim 7, further comprising the steps of:
2 detecting the wafer flat shift by optical beam sensors; and
3 adjusting the positions of the sensors.

1 12. The method as recited in claim 7, further comprising the steps of:
2 detecting the wafer flat shift by optical beam sensors;
3 sending signals from the sensors to a relay;
4 operating a solenoid by the relay to open a door of the wafer fabrication equipment to
5 release a corresponding wafer for further fabrication; and
6 shutting off at least one of the signals from the sensors by the wafer flat shift.

1 13. The method as recited in claim 12, further comprising the step of:
2 detecting a wafer flat shift of (2)(0.9⁰) angular displacement.

1 14. The method as recited in claim 12, further comprising the step of:
2 detecting a wafer flat shift of (5)(0.9⁰) angular displacement.

1 15. A control circuit, comprising:
2 sensors to detect an edge of a wafer flat on a wafer;

3 a power supply supplying power to the sensors;
4 a relay activated by outputs of the sensors;
5 a solenoid activated by the relay to unlock a door for exit of the wafer to equipment for
6 further wafer fabrication; and
7 at least one of the sensors sensing a wafer flat shift, which shuts off the equipment.

1 16. The control circuit of claim 15, further comprising:
2 the sensors being set to detect a wafer flat shift of (2)(0.9⁰) angular displacement.

1 17. The control circuit of claim 15, further comprising:
2 the sensors being set to detect a wafer flat shift of (5)(0.9⁰) angular displacement.

1 18. The control circuit of claim 15, further comprising:
2 the sensors being mounted for adjustment along orthogonal axes corresponding to the a
3 wafer flat shift in angular displacement.

1 19. The control circuit of claim 15, further comprising:
2 the sensors being adjustable on the frame.

1 20. The control circuit of claim 15, further comprising:
2 the sensors being adjustable along orthogonal axes.